

# DJ – S45CQ/ T / E

## Service Manual

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**ALINCO, INC.**

# SPECIFICATIONS

## General

Type	DJ-S45CQS/CQL	DJ-S45T	DJ-S45E
Transmitter Range (MHz)	PMR : 446.00625-446.09375 LPD : 433.06000-434.78000	420.000-449.995	430.000-439.995
Receiving Range (MHz)	PMR : 446.00625-446.09375 LPD : 433.06000-434.78000	420.000-473.995	430.000-439.995
Modulation	F3E		
Operating Temperature	-10°C~60°C (+14° F~+140° F)		
Frequency Stability	-7~+3ppm		
Antenna Impedance	50 ohm		
Supply Voltage	3.0-6.0VDC (External)		
Ground Method	Negative ground		
Current (DC6.0V)	Transmit	PMR : Approx. 0.45A LPD : Approx. 0.20A	Hi-Power : Approx. 1.00A Lo-Power : Approx. 0.45A
	Receive	Approx. 60mA	
	Battery Save	Approx. 13mA	

## Transmitter

Type	DJ-S45CQS/CQL	DJ-S45T	DJ-S45E
Output Power	PMR : Approx. 500mW LPD : Approx. 10mW	Hi-Power : Approx. 2.0W Lo-Power : Approx. 0.5W	
Modulation System	Variable Reactance		
Max. Deviation	+/-2.5kHz	+/-5kHz	
Spurious Emission	250nW or less	-60dB or less	
Frequency Stability	Approx. 2k ohm		

## Receiver

Type	DJ-S45CQS/CQL	DJ-S45T	DJ-S45E
Receiver circuit	Double Conversion Super-heterodyne		
Impedance Frequency	1st : 21.7MHz / 2nd : 450kHz		
Sensitivity	-15dBu or less (12dB SINAD)		
Audio Output Power	180mW or over (MAX) / 150mW or over (10% Distortion 8 ohm)		
Spurious Response	2nW or less	60dB or over	

! NOTE: All specifications are subject to change without notice or obligation.

# CIRCUIT DESCRIPTION

## 1) Reception

### 1. RX Method

FM: Double Super Heterodyne Method  
Double Super Heterodyne Method  
1st IF: FM: 21.7 MHz  
2nd IF: FM: 450 kHz

### 2. Front End

The signal input from antenna passes through the low pass filter, then it is amplified at RF amplifier Q110 and Q111. The amplified signal is led to band pass filter, then input to the mixer IC103.

### 3. Mixer

The input signal to the mixer IC103 and the 1st local signal are added or subtracted at mixer IC103, and the crystal filter FL101 selects the signal of 21.7 MHz, then it is amplified at the 1st IF amplifier Q112 after the adjacent signal is eliminated.

### 4. IF

The signal amplified at the 1st IF amplifier Q112 is supplied to pin 16 of IC104 for demodulation. Also the signal of 21.25MHz from the reference buffer output of IC102, then it is led to pin 1 of IC104. 2 input signals are mixed in the mixer circuit inside IC104 and converted into the 2nd IF signal of 450kHz. The converted 2nd IF signal is output from pin 3 of IC104.

The output signal from pin 3 of IC104 is led to pin 5 of IC104 after eliminating the adjacent channel signal at the ceramic filter FL102. The input 2nd IF signal to pin 5 of IC104 is demodulated at the limiter amplifier and quadrature detector circuits inside of IC104, then output from pin 9 of IC104 as an AF signal.

### 5. Squelch

The AF signal got from pin 9 of IC104 is fed to pin 8 of IC7. The input signal is output from pin 14 of IC104 passing through the noise filter amplifier and rectifier circuits inside of IC104. The rectified signal is added to the A/D port of the microcomputer IC2. Judging the signal, the microcomputer controls ON/OFF of the audio output.

### 6. Audio

The volume of output audio signal is adjusted at the volume VR1 via the AF amplifier Q2. The signal is input to pin 2 of audio power amplifier IC1 and output from pin 6 to drive a speaker, etc.

### 7. VCO

The VCO in UHF band consists of the Colpitts oscillator. D103, D105, L114 and L115 determine the oscillating frequency, and the signal is oscillated at the transistor Q106. The oscillated signal is supplied to pin 6 of PLL-IC102 passing through the buffer amplifier Q101 and Q107.

## 8. PLL

PLL-IC102 is used to control the oscillating frequency of the VCO.

IC102 is controlled by the serial control signal sent from the microprocessor IC2. The 21.25MHz reference frequency of IC102 oscillates the crystal oscillator X101 at the inside circuit.

IC102 compares the frequency gained by dividing the signal added to pin 14 of IC2 by the control signal from IC2 with the frequency gained by dividing the reference frequency of 21.25MHz inside IC102.

When the phase difference is found as a result of phase comparison, the pulse signal is output from the charge pump output of pin 16 of IC102, then the signal is converted into the DC voltage at the passive filter and added to the cathode side of the VCO vari-cap D103 and D105 to make the phases equal. In result the stabilized oscillation can be done at the desired frequency.

## 2) Transmission

### 1. Microphone Amplifier

The microphone amplifier IC4 has 2 operational amplifiers. The voice is converted into the electric signal through the microphone, then supplied to IC4.

The input signal is amplified and pre-emphasized to be output.

The signal output from microphone amplifier is adjusted the maximum frequency deviation at VR102. The adjusted signal is added to the cathode of the VCO vari-cap D104 for deviation to change the capacity of the oscillation circuit resulting the FM deviation.

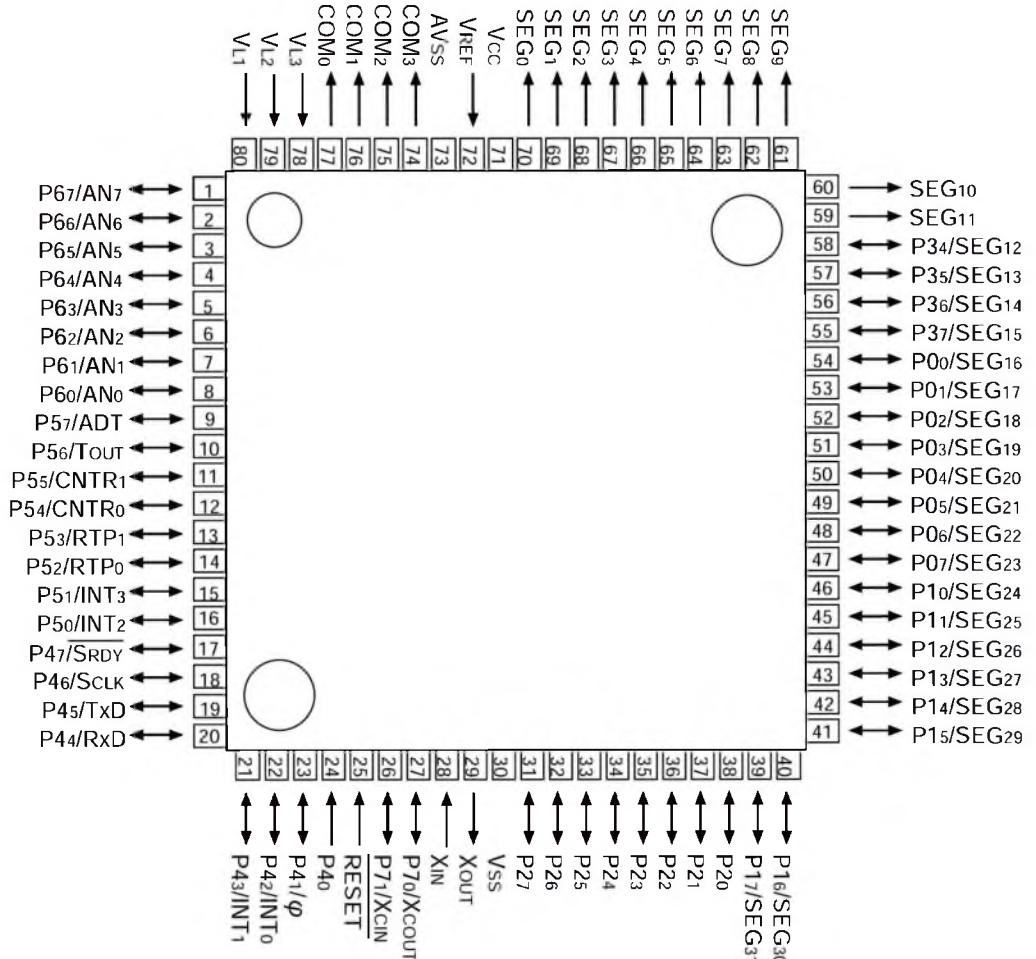
### 2. Power Amplifier

The oscillated signal of the VCO is supplied to the power amplifier Q104, passing through buffer amplifier Q107, pre-driver amplifier IC101, driver amplifier Q105. The power-amplified signal is supplied to the antenna through the duplexer after the harmonics are attenuated enough.

### 3) CPU

**M38227M8A (XA1125/XA1141)**

Terminal Connection  
(TOP VIEW)

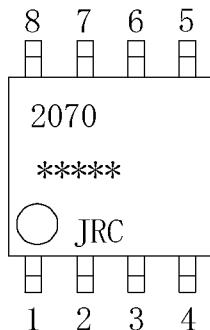


No.	Terminal	Signal	I/O	Description
1	P67(AN7)	BP1	A/D	Band plan 1
2	P66(AN6)	BP2	A/D	Band plan 2
3	P65(AN5)	TIN	A/D	CTCSS Tone input
4	P64(AN4)	SQL	A/D	Noise level input for squelch
5	P63(AN3)	SMT	A/D	S-meter input
6	P62(AN2)	BP3	A/D	Band plan 3
7	P61(AN1)	BCHK	A/D	Battery detection input
8	P60(AN0)	EXT	O	Signal detection output
9	P57(ADT)	MUTE	O	Microphone mute
10	P56(Tout)	BEEP	O	Beep tone output
11	P55(CNTR1)	PT3	I	PTT input
12	P54(CNTR0)	TBST	O	Tone burst output
13	P53(RTP1)	AFPC	O	Audio amp power supply ON/OFF control
14	P52(RTP0)	AFS	O	AF mute
15	P51(INT3)	FUNC	I	FUNC key input
16	P50(INT2)	DOWN	I	DOWN key input
17	P47(SRDY)	V/M	I	V/M key input
18	P46(Sclk)	UP	I	UP key input
19	P45(TxD)	TXD	O	Clone data transmission output
20	P44(RxD)	RXD	I	Clone data reception input
21	P43(INT1)	TSWC	O	TSQ power supply ON/OFF control
22	P42(INT0)	BU	I	Back up signal detection input
23	P41(φ)	MONI	I	MONI key input
24	P40	NC	—	—
25	RESET	RST	I	Reset input
26	P71(Xcin)	SCL	I	Serial clock output for EEPROM
27	P70(Xcout)	SDA	I/O	Serial data I/O for EEPROM
28	XIN	XIN	I	Clock input
29	XOUT	Xout	O	Clock output
30	VSS	Vss	—	CPU GND
31	P27	R3C	O	RX power switch output
32	P26	C3C	O	C3V power supply ON/OFF control
33	P25	P3C	O	PLL power supply ON/OFF control
34	P24	T3C	O	TX power supply ON/OFF control
35	P23	CLK	O	Serial clock output
36	P22	DATA	I/O	Serial data output
37	P21	STB1	O	Strobe for PLL
38	P20	LMPC	O	LCD backlight ON/OFF control
39	P17(SEG31)	SD	O	RX indicator ON/OFF control
40	P16(SEG30)	TLC	O	TX indicator ON/OFF control
41	P15(SEG29)	LOW	O	Low power switch control
42	P14(SEG28)	TONE5	O	Tuning voltage output
43	P13(SEG27)	TONE4	O	Tuning voltage output
44	P12(SEG26)	TONE3	O	Tuning voltage output
45	P11(SEG25)	TONE2	O	Tuning voltage output
46	P10(SEG24)	TONE1	O	Tuning voltage output
47	P07(SEG23)	SEG23	O	LCD segment signal
48	P06(SEG22)	SEG22	O	LCD segment signal
49	P05(SEG21)	SEG21	O	LCD segment signal
50	P04(SEG20)	SEG20	O	LCD segment signal

No.	Terminal	Signal	I/O	Description
51	P03(SEG19)	SEG19	O	LCD segment signal
52	P02(SEG18)	SEG18	O	LCD segment signal
53	P01(SEG17)	SEG17	O	LCD segment signal
54	P00(SEG16)	SEG16	O	LCD segment signal
55	P37(SEG15)	SEG15	O	LCD segment signal
56	P36(SEG14)	SEG14	O	LCD segment signal
57	P35(SEG13)	SEG13	O	LCD segment signal
58	P34(SEG12)	SEG12	O	LCD segment signal
59	SEG11	SEG11	O	LCD segment signal
60	SEG10	SEG10	O	LCD segment signal
61	SEG9	SEG9	O	LCD segment signal
62	SEG8	SEG8	O	LCD segment signal
63	SEG7	SEG7	O	LCD segment signal
64	SEG6	SEG6	O	LCD segment signal
65	SEG5	SEG5	O	LCD segment signal
66	SEG4	SEG4	O	LCD segment signal
67	SEG3	SEG3	O	LCD segment signal
68	SEG2	SEG2	O	LCD segment signal
69	SEG1	SEG1	O	LCD segment signal
70	SEG0	SEG0	O	LCD segment signal
71	Vcc	Vcc	—	CPU power supply
72	VREF	VREF	—	AD converter power supply
73	Avss	Avss	—	AD converter GND
74	COM3	COM3	O	LCD COM3 output
75	COM2	COM2	O	LCD COM2 output
76	COM1	COM1	O	LCD COM1 output
77	COM0	COM0	O	LCD COM0 output
78	LV3	LV3	I	LCD power supply
79	LV2	LV2	I	LCD power supply
80	LV1	LV1	I	LCD power supply

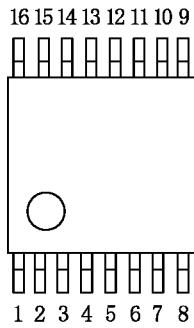
# SEMICONDUCTOR DATA

## 1) NJM2070M (XA0210) Audio Power Amplifier



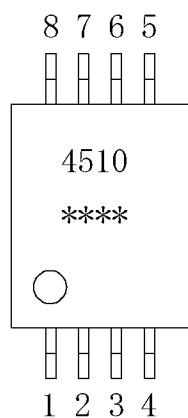
1. NC
2. + INPUT
3. - INPUT
4. GND
5. GND
6. OUTPUT
7. V+
8. NC

## 2) TA31136FN (XA0404) FM IF IC



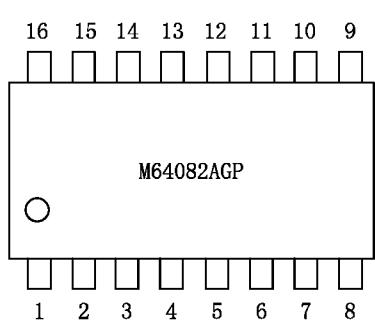
1. OSC IN	9. AF OUT
2. OSC OUT	10. QUAD
3. MIX OUT	11. IF OUT
4. Vcc	12. RSSI
5. IF IN	13. N-DET
6. DEC	14. N-REC
7. FIL OUT	15. GND
8. FIL IN	16. MIX IN

## 3) BA4510FV (XA0537) Dual Operational Amplifiers



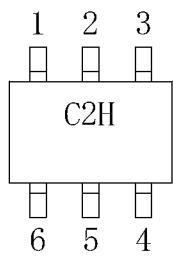
1. Output 1
2. Inverting Input 1
3. Non-inverting Input 1
4. GND
5. Non-inverting Input 2
6. Inverting Input 2
7. Output 2
8. V+

#### 4) M64082AGP (XA0543) PLL Frequency Synthesizer



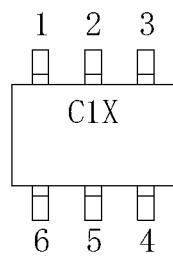
1. XB0	9. PD2
2. SI	10. Lock
3. CPS	11. Fin2
4. RST	12. Vc1
5. Vcc	13. CONT
6. Fin1	14. GND
7. Vss	15. Xout
8. PD1	16. Xin

#### 5) uPC2771TB (XA0953) MMIC Medium Output Power Amplifier



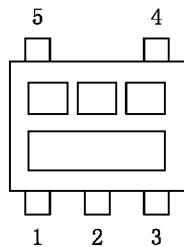
1. INPUT
2. GND
3. GND
4. OUTPUT
5. GND
6. Vcc

#### 6) uPC2757TB (XA0953) MMIC 1st Frequency Down-converter

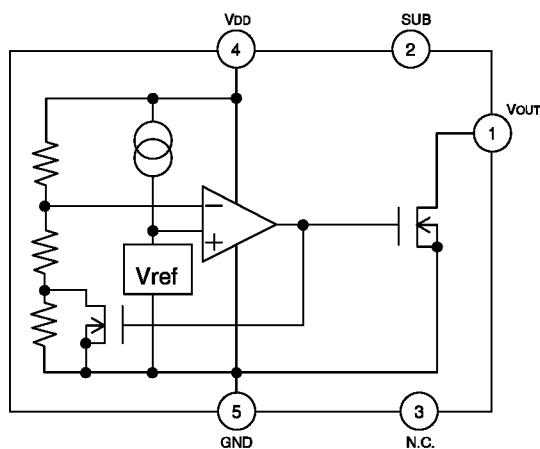


1. RF INPUT
2. GND
3. LO INPUT
4. PS
5. Vcc
6. IF OUTPUT

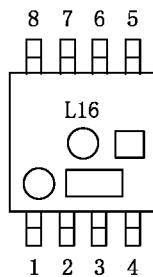
## 7) BU4818FVE (XA1095) RESET IC



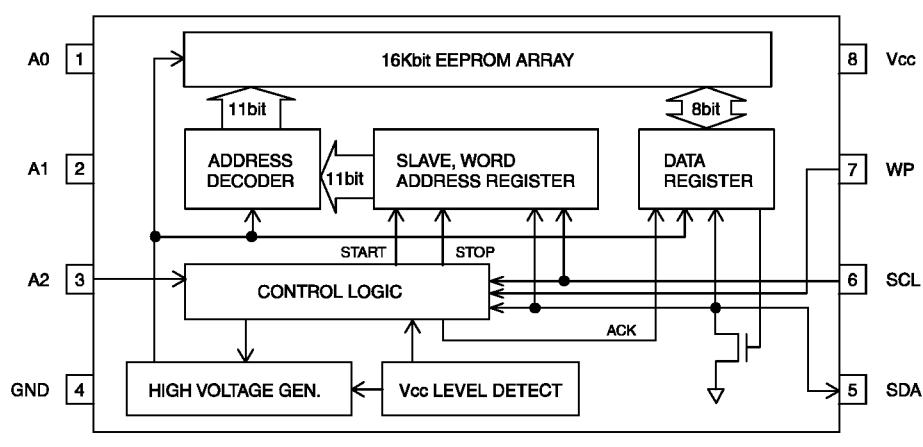
1. V<sub>OUT</sub>
2. SUB
3. N. C.
4. V<sub>DD</sub>
5. GND



## 8) BR24L16FVM (XA1096) EEPROM

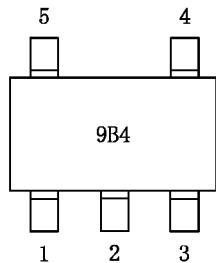


1. A0
2. A1
3. A2
4. GND
5. SDA
6. SCL
7. WP
8. V<sub>CC</sub>



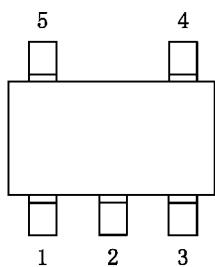
A0,A1 = N.C, A2 = Don't Use.

## 9) XC6209F352MR (XA1097) 3.5V Voltage Regulator



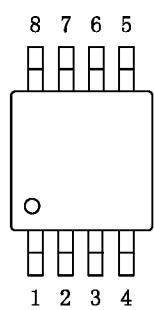
1. V<sub>IN</sub>
2. V<sub>SS</sub>
3. CE
4. NC
5. V<sub>OUT</sub>

## 10) XC6367A453MR (XA1098) DC/DC Converter IC



1. V<sub>OUT</sub> (FB)
2. V<sub>DD</sub>
3. CE
4. GND
5. EXT

## 11) LM2904PWR (XA1103) Dual Operational Amplifiers



1. 10UT
2. 1IN-
3. 1IN+
4. GND
5. 2IN+
6. 2IN-
7. 20UT
8. V<sub>CC</sub>

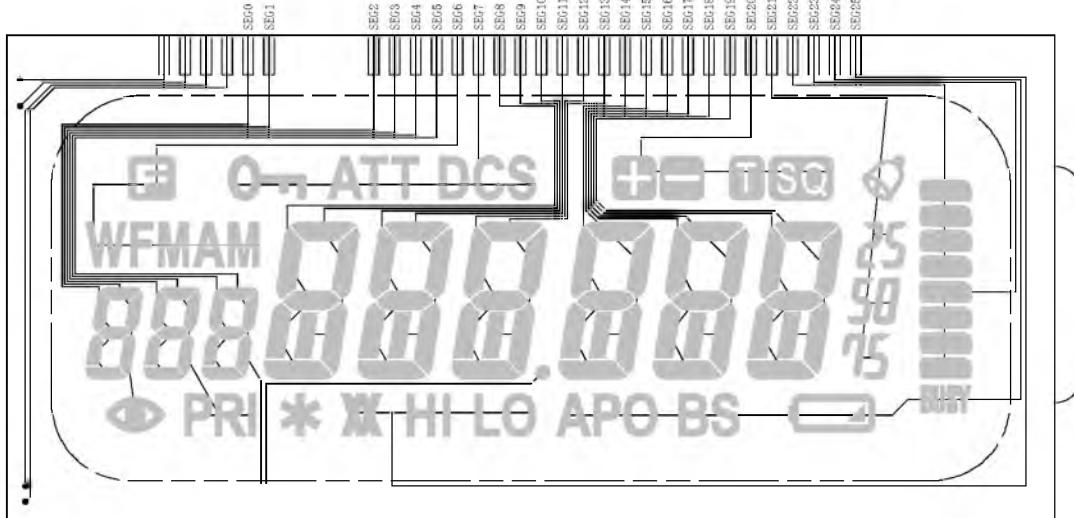
## 12) Transistor, Diode and LED Outline Drawings

Top View

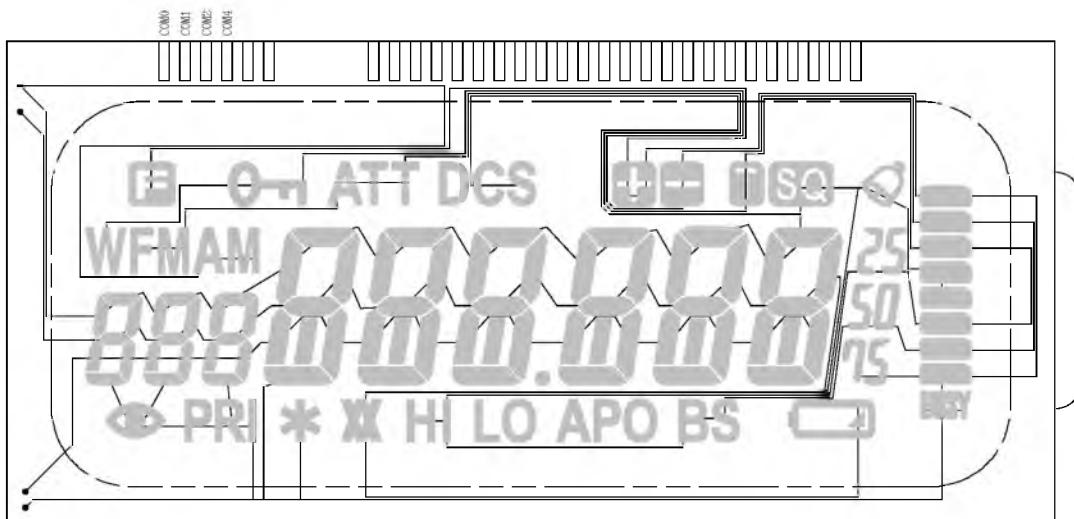
1SV307 (TPH3) XD0326	1SV311 XD0344	1SV279 XD0364	MA27077 XD0381	MA27728 XD0382	VDZT2R5. 1B XD0402	CRS09 XD0412
2SK3078A XE0049	XP161A1355PR XE0050	2SJ347 XE0051	MCH6305 XE0058	2SK3541 XE0059	2SK3079A XE0067	SLM-521MUW XL0097
SML-A10MT XL0105	2SC5066FT XT0180	2SC4738 XT0181	2SA2030 XT0196	2SC6026MFV XT0210	DTC144TM XU0205	DTA123JM XU0206
EMA8 XU0207	EMD3 XU0208				$R_b = 47\text{kohm}$ $R_{be} = \text{none}$	$R_b = 2.2\text{kohm}$ $R_{be} = 47\text{kohm}$
$R_b = 10\text{kohm}$ $R_{be} = 47\text{kohm}$	$R_b = 10\text{kohm}$ $R_{be} = 10\text{kohm}$					

## 13) LCD Connection (EL0060)

### SEGMENT

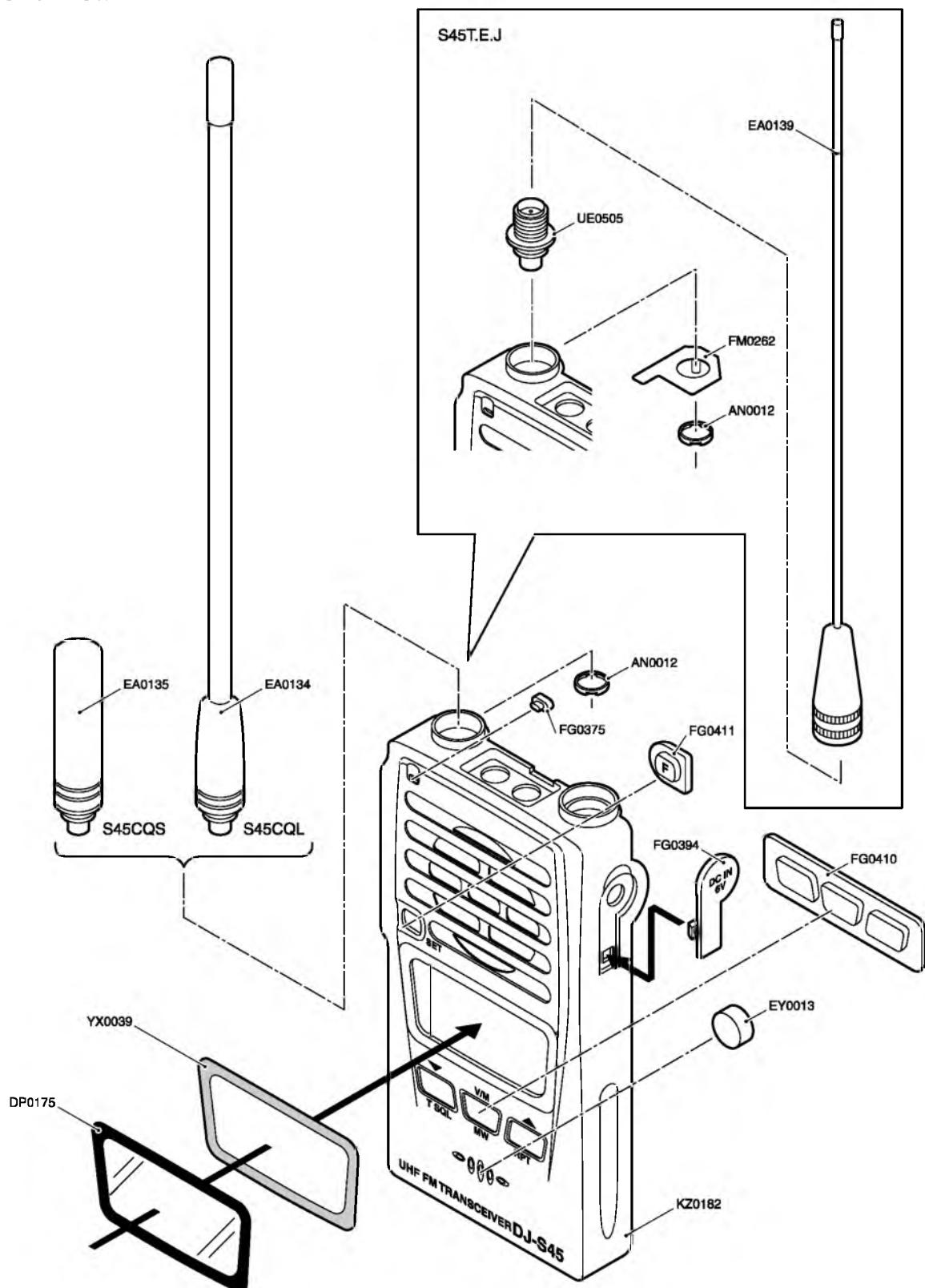


### COMMON

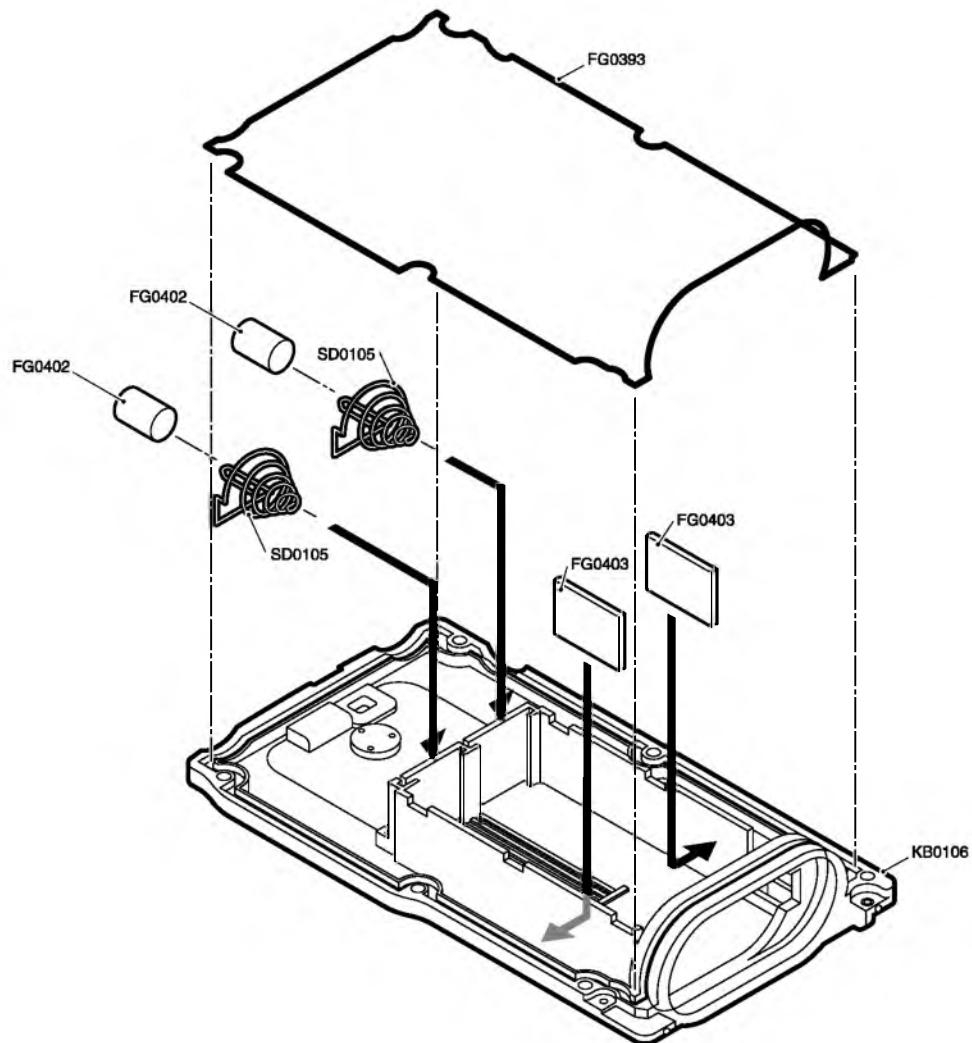


# EXPLODED VIEW

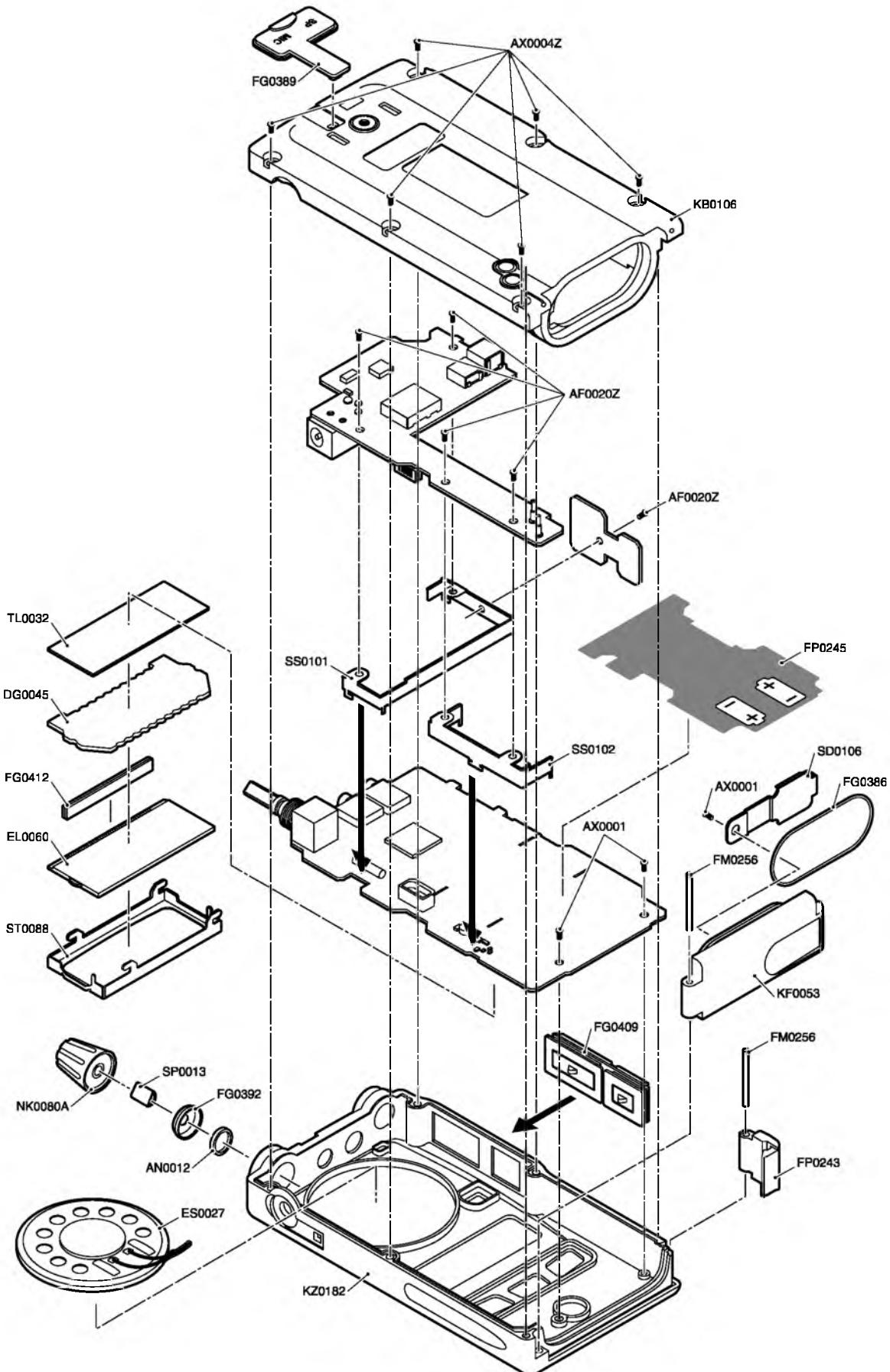
## 1) Front View 1



## 2) Front View 2



### 3) Rear View



# PARTS LIST

## CPU Unit

Ref No.	Parts No.	Parts Name	Ver.	Ref No.	Parts No.	Parts Name	Ver.
	FG0412	LCD RUBBER CN		C58	CU3535	GRM36B102K50PT	
	DG0045	LCD LIGHT		C60	CU3559	GRM155B30J105KE18D	
	TL0032	REFLECTING SHEET		C61	CU3523	GRM36CH101J50PT	
	ST0088	LCD HOLDER		C62	CU3523	GRM36CH101J50PT	
C1	CS0422	TMCMB1A476MTR		C63	CU3535	GRM36B102K50PT	
C2	CU3554	GRM36B104K10PT		C64	CU3535	GRM36B102K50PT	
C3	CU3554	GRM36B104K10PT		C65	CU3547	GRM36B103K16PT	
C4	CU3559	GRM155B30J105KE18D		CN1	UE0487	AXK5S20330P	
C5	CS0397	16V 1UF		D2	XD0382	MA27728	
C6	CU3539	GRM36B222K50PT		D3	XD0402	VDZT2R 5.1B	
C7	CU3559	GRM155B30J105KE18D		D4	XD0412	CRS09(TE85L,Q)	
C8	CU3551	GRM36B223K16PT		D5	XD0412	CRS09(TE85L,Q)	
C9	CU3551	GRM36B223K16PT		D6	XL0105	SML-A10MT	
C11	CU3554	GRM36B104K10PT		D7	XL0105	SML-A10MT	
C12	CS0422	TMCMB1A476MTR		D8	XL0097	SML-521MUWT86	
C13	CU3551	GRM36B223K16PT		IC1	XA0210	IC NJM2070M	
C15	CU3552	GRM36B333K10PT		IC2	XA1125/XA1141	M38227M8A	
C16	CU3554	GRM36B104K10PT		IC3	XA1103	LM2904PWR	
C17	CU3547	GRM36B103K16PT		IC4	XA0537	BA4510FV-E2	
C18	CU3535	GRM36B102K50PT		IC5	XA1095	BU4818FVE-TR	
C19	CU3535	GRM36B102K50PT		IC6	XA1096	BR24L16FVM-WTR	
C20	CU3535	GRM36B102K50PT		IC7	XA1097	XC6209F352MR	
C21	CU3554	GRM36B104K10PT		IC8	XA1098	XC6367A453MR	
C22	CU3554	GRM36B104K10PT		JK1	UJ0019	HSJ1493-01-010	
C23	CU3537	GRM36B152K50PT		JK2	UJ0059	HSJ1102-01-510	
C24	CU3523	GRM36CH101J50PT		L1	QC0711	CDRH5D28-220NC	
C25	CU3552	GRM36B333K10PT		L2	QC0831	NLCV32T-2R2M-PF	
C26	CU3554	GRM36B104K10PT		LCD1	EL0060	LCD DJS45	
C27	CU3539	GRM36B222K50PT		Q1	XT0196	2SA2030T2L	
C28	CU3554	GRM36B104K10PT		Q10	XU0207	EMA8T2R	
C29	CU3559	GRM155B30J105KE18D		Q11	XU0206	DTA123JMT2L	
C30	CS0428	4V15UF		Q12	XT0196	2SA2030T2L	
C31	CU3539	GRM36B222K50PT		Q13	XE0050	XP161A1355PR	
C32	CU3554	GRM36B104K10PT		Q14	XU0205	DTC144TMT2L	
C33	CU3551	GRM36B223K16PT		Q15	XU0206	DTA123JMT2L	
C34	CU3551	GRM36B223K16PT		Q16	XU0208	EMD3T2R	
C35	CU3539	GRM36B222K50PT		Q17	XT0210	2SC6026MFV-GR	
C36	CU3559	GRM155B30J105KE18D		Q18	XU0205	DTC144TMT2L	
C37	CU3523	GRM36CH101J50PT		Q2	XT0210	2SC6026MFV-GR	
C38	CU3547	GRM36B103K16PT		Q3	XE0059	2SK3541T2L	
C39	CU3559	GRM155B30J105KE18D		Q4	XU0205	DTC144TMT2L	
C40	CU3531	GRM36B471K50PT		Q5	XU0206	DTA123JMT2L	
C41	CU3535	GRM36B102K50PT		Q6	XE0059	2SK3541T2L	
C42	CU3517	GRM36CH330J50PT		Q7	XU0205	DTC144TMT2L	
C43	CU3517	GRM36CH330J50PT		Q8	XU0206	DTA123JMT2L	
C44	CU3547	GRM36B103K16PT		Q9	XU0205	DTC144TMT2L	
C45	CU3521	GRM36CH680J50PT		R1	RK3514	1005 1/16W 10 OHM J	
C46	CU3535	GRM36B102K50PT		R2	RK3526	1005 1/16W 100 OHM J	
C47	CU3559	GRM155B30J105KE18D		R3	RK3526	1005 1/16W 100 OHM J	
C48	CS0397	16V 1UF		R4	RK3550	1005 1/16W 10K OHM J	
C49	CU3547	GRM36B103K16PT		R5	RK3542	1005 1/16W 2.2K OHM J	
C50	CU3554	GRM36B104K10PT		R6	RK3542	1005 1/16W 2.2K OHM J	
C51	CS0422	TMCMB1A476MTR		R7	RK3558	1005 1/16W 47K OHM J	
C52	CS0422	TMCMB1A476MTR		R8	RK3550	1005 1/16W 10K OHM J	
C54	CU3535	GRM36B102K50PT		R9	RK3542	1005 1/16W 2.2K OHM J	
C55	CS0422	TMCMB1A476MTR		R10	RK3566	1005 1/16W 220K OHM J	
C56	CU3535	GRM36B102K50PT		R11	RK3558	1005 1/16W 47K OHM J	
C57	CS0429	4V22UF		R12	RK3558	1005 1/16W 47K OHM J	

Ref No.	Parts No.	Parts Name	Ver.
R13	RK3562	1005 1/16W 100K OHMJ	
R14	RK3554	1005 1/16W 22K OHM J	
R15	RK3574	1005 1/16W 1.0M OHMJ	
R16	RK3542	1005 1/16W 2.2K OHMJ	
R17	RK3562	1005 1/16W 100K OHMJ	
R18	RK3050	1608 1/10W 10K OHM J	T/E
R19	RK3050	1608 1/10W 10K OHM J	T/E
R20	RK3050	1608 1/10W 10K OHM J	CQL/CQS
R21	RK3050	1608 1/10W 10K OHM J	T/E
R22	RK3550	1005 1/16W 10K OHM J	
R23	RK3546	1005 1/16W 4.7K OHMJ	
R24	RK3550	1005 1/16W 10K OHM J	
R25	RK3550	1005 1/16W 10K OHM J	
R27	RK3561	1005 1/16W 82K OHM J	
R28	RK3574	1005 1/16W 1.0M OHMJ	
R29	RK3546	1005 1/16W 4.7K OHMJ	
R30	RK3572	1005 1/16W 680K OHMJ	
R31	RK3563	1005 1/16W 120K OHMJ	
R32	RK3570	1005 1/16W 470K OHMJ	
R33	RK3561	1005 1/16W 82K OHM J	
R35	RK3547	1005 1/16W 5.6K OHMJ	
R37	RK3559	1005 1/16W 56K OHM J	
R40	RK3550	1005 1/16W 10K OHM J	
R43	RK3561	1005 1/16W 82K OHM J	
R44	RK3546	1005 1/16W 4.7K OHMJ	
R45	RK3550	1005 1/16W 10K OHM J	
R46	RK3574	1005 1/16W 1.0M OHMJ	
R47	RK3542	1005 1/16W 2.2K OHMJ	
R48	RK3546	1005 1/16W 4.7K OHMJ	
R49	RK3574	1005 1/16W 1.0M OHMJ	
R50	RK3550	1005 1/16W 10K OHM J	
R51	RK3538	1005 1/16W 1.0K OHMJ	
R52	RK3554	1005 1/16W 22K OHM J	
R53	RK1018	3216 1/8 W 100 OHM J	
R54	RK3562	1005 1/16W 100K OHMJ	
R55	RK3550	1005 1/16W 10K OHM J	
R56	RK3526	1005 1/16W 100 OHM J	
R57	RK3550	1005 1/16W 10K OHM J	
R58	RK3566	1005 1/16W 220K OHMJ	
R59	RK3534	1005 1/16W 470 OHM J	
R60	RK3562	1005 1/16W 100K OHMJ	
R62	RK3558	1005 1/16W 47K OHM J	
R63	RK3556	1005 1/16W 33K OHM J	
R64	RK3562	1005 1/16W 100K OHMJ	
R65	RK3562	1005 1/16W 100K OHMJ	
R66	RK3554	1005 1/16W 22K OHM J	
R67	RK3554	1005 1/16W 22K OHM J	
R68	RK3550	1005 1/16W 10K OHM J	
R69	RK3562	1005 1/16W 100K OHMJ	
R70	RK3574	1005 1/16W 1.0M OHMJ	
R71	RK3554	1005 1/16W 22K OHM J	
R72	RK3556	1005 1/16W 33K OHM J	
R73	RK3569	1005 1/16W 390K OHMJ	
R74	RK3560	1005 1/16W 68K OHM J	
R75	RK3550	1005 1/16W 10K OHM J	
R76	RK3534	1005 1/16W 470 OHM J	
R77	RK3563	1005 1/16W 120K OHMJ	T/E
R77	RK3561	1005 1/16W 82K OHM J	CQL/CQS
R78	RK3558	1005 1/16W 47K OHM J	
R79	RK3534	1005 1/16W 470 OHM J	
R80	RK3550	1005 1/16W 10K OHM J	

Ref No.	Parts No.	Parts Name	Ver.
R81	RK3550	1005 1/16W 10K OHM J	
R82	RK3550	1005 1/16W 10K OHM J	
R83	RK3552	1005 1/16W 15K OHM J	
R84	RK3528	1005 1/16W 150 OHM J	
R85	RK3562	1005 1/16W 100K OHMJ	
R87	RK3528	1005 1/16W 150 OHM J	
R88	RK3528	1005 1/16W 150 OHM J	
R89	RK3501	1005 1/16W 0 OHM J	T/E
R90	RK3544	1005 1/16W 3.3K OHMJ	
R91	RK3562	1005 1/16W 100K OHMJ	
R92	RK3561	1005 1/16W 82K OHM J	
R93	RK3558	1005 1/16W 47K OHM J	
R94	RK3574	1005 1/16W 1.0M OHMJ	
R95	RK3544	1005 1/16W 3.3K OHMJ	
R96	RK3558	1005 1/16W 47K OHM J	
R97	RK3550	1005 1/16W 10K OHM J	
R98	RK3526	1005 1/16W 100 OHM J	
SW5	UU0027	SKQGAA	
SW6	UU0027	SKQGAA	
VR1	UR0026	TP76N00NB103 15,3F	
W1	MRCL02AA	#30R02-20-02	
X1	XQ0132	CSA309/4.194304MHZ	

## MAIN Unit

Ref No.	Parts No.	Parts Name	Ver.
	FM0266	HEAT SINK	
	UP0530A	DJS45 INTEGRATED	
C101	CS0431	10V 2.2UF	
C102	CU3535	GRM36B102K50PT	
C103	CU3531	GRM36B471K50PT	
C104	CU3535	GRM36B102K50PT	
C105	CU3519	GRM36CH470J50PT	
C106	CU3531	GRM36B471K50PT	
C107	CU3531	GRM36B471K50PT	
C108	CU3535	GRM36B102K50PT	
C109	CS0429	4V22UF	
C110	CU3514	GRM36CH180J50PT	
C111	CU3531	GRM36B471K50PT	
C112	CU3531	GRM36B471K50PT	
C113	CU3531	GRM36B471K50PT	
C114	CU3531	GRM36B471K50PT	
C115	CU3531	GRM36B471K50PT	
C116	CU3531	GRM36B471K50PT	
C117	CU3506	GRM36CH050C50PT	
C118	CS0428	4V15UF	
C119	CU3508	GRM36CH070D50PT	
C120	CU3512	GRM36CH120J50PT	
C121	CU3511	GRM36CH100D50PT	
C122	CU3503	GRM36CK020C50PT	
C123	CU3531	GRM36B471K50PT	
C124	CU3531	GRM36B471K50PT	
C125	CU3515	GRM36CH220J50PT	
C126	CU3507	GRM36CH060D50PT	
C127	CU3517	GRM36CH330J50PT	
C128	CU3503	GRM36CK020C50PT	
C129	CU3513	GRM36CH150J50PT	
C130	CU3512	GRM36CH120J50PT	
C131	CU3502	GRM36CK010C50PT	T/E
C131	CU3501	GRM36CK0R5C50PT	
C133	CU3531	GRM36B471K50PT	CQL/CQS
C134	CU3501	GRM36CK0R5C50PT	
C136	CU3507	GRM36CH060D50PT	
C137	CU3535	GRM36B102K50PT	
C138	CU3554	GRM36B104K10PT	
C139	CU3553	GRM36B473K10PT	
C140	CU3531	GRM36B471K50PT	T/E
C140	CU3525	GRM36CH151J50PT	
C141	CS0397	16V 1UF	CQL/CQS
C142	CU3535	GRM36B102K50PT	
C143	CU3535	GRM36B102K50PT	
C144	CU3535	GRM36B102K50PT	
C145	CU3516	GRM36CH270J50PT	
C146	CU3516	GRM36CH270J50PT	
C147	CU3535	GRM36B102K50PT	
C148	CU3531	GRM36B471K50PT	
C149	CU3531	GRM36B471K50PT	
C150	CU3547	GRM36B103K16PT	
C151	CU3547	GRM36B103K16PT	
C152	CU3531	GRM36B471K50PT	
C153	CU3554	GRM36B104K10PT	
C154	CU3503	GRM36CK020C50PT	
C155	CU3503	GRM36CK020C50PT	
C156	CU3503	GRM36CK020C50PT	
C157	CU3501	GRM36CK0R5C50PT	

Ref No.	Parts No.	Parts Name	Ver.
C158	CU3503	GRM36CK020C50PT	
C159	CU3502	GRM36CK010C50PT	
C160	CU3535	GRM36B102K50PT	
C161	CU3547	GRM36B103K16PT	
C162	CU3547	GRM36B103K16PT	
C163	CU3506	GRM36CH050C50PT	
C164	CU3502	GRM36CK010C50PT	T/E
C164	CU3505	GRM36CH040C50PT	
C165	CU3508	GRM36CH070D50PT	CQL/CQS
C165	CU3502	GRM36CK010C50PT	
C166	CU3547	GRM36B103K16PT	T/E
C167	CU3501	GRM36CK0R5C50PT	
C168	CU3515	GRM36CH220J50PT	
C169	CU3515	GRM36CH220J50PT	
C170	CU3515	GRM36CH220J50PT	
C171	CU3515	GRM36CH220J50PT	
C172	CU3522	GRM36CH820J50PT	
C173	CU3547	GRM36B103K16PT	
C174	CU3535	GRM36B102K50PT	
C175	CU3527	GRM36CH221J25PT	
C176	CU3547	GRM36B103K16PT	
C177	CU3527	GRM36CH221J25PT	
C178	CS0429	4V22UF	
C179	CU3547	GRM36B103K16PT	
C180	CU3535	GRM36B102K50PT	
C181	CS0427	6.3V10UF	
C182	CU3535	GRM36B102K50PT	
C183	CU3517	GRM36CH330J50PT	
C184	CU3559	GRM155B30J105KE18D	
C185	CU3554	GRM36B104K10PT	
CN101	UE0313	H.FL-R-SMT2(C)(10)	CQL/CQS
CN102	UE0488	AXK6S20435P	
D101	XD0382	MA27728	
D102	XD0326	1SV307	
D103	XD0364	1SV279-TPH3	
D104	XD0364	1SV279-TPH3	
D105	XD0364	1SV279-TPH3	
D106	XD0381	MA27077	
D107	XD0344	1SV311 TPH3	
D108	XD0344	1SV311 TPH3	
D109	XD0344	1SV311 TPH3	
D110	XD0344	1SV311 TPH3	
D111	XD0412	CRS09(TE85L,Q)	
D112	XD0382	MA27728	
FL101	XF0068	SF-2113 21.7MHz W	T/E
FL101	XF0065	SF-2113 21.7MHz	
FL102	XC0075	CFUCG450E-TC	CQL/CQS
FL102	XC0074	CFUCG450G-TC	
IC101	XA0953	UPC2771TB-E3	T/E
IC102	XA0543	M64082AGP	
IC103	XA0976	UPC2757TB-E3	
IC104	XA0404	TA31136FNG	
JK101	UJ0026	HEC3600-016010	
K1	TS0179	VCO CASE DJS800	
L101	QC0507	LK16081R0K-T	
L102	QS401506	E2-0.40-1.5-6TL	
L103	QC0532	LQN21A33NJ04	
L104	QS401505	E2-0.40-1.5-5T	
L105	QS401505	E2-0.40-1.5-5T	

Ref No.	Parts No.	Parts Name	Ver.
L106	QS401202	E2-0.40-1.2-2TL	
L107	QC0627	LL1608-FSR10J	
L108	QC0701	HK100522NJ	
L109	QC0507	LK16081R0K-T	
L110	QS401202	E2-0.40-1.2-2TL	
L111	QC0558	LL1608FH5N6S 5.6NH	
L112	QC0614	LL1608-FS8N2J	
L113	QC0617	LL1608-FS15NJ	
L114	QC0581	LQW1608A5N6D00T1	
L115	QC0579	LQW1608A3N9D00T1	
L116	QS401505	E2-0.40-1.5-5T	
L118	QC0585	LQW1608A12NJ00T1	
L119	QC0585	LQW1608A12NJ00T1	
L120	QC0585	LQW1608A12NJ00T1	
L121	QC0585	LQW1608A12NJ00T1	
L122	QB0052	BKP1608HS271-T	
Q101	XT0180	2SC5066FT-Y(TE85L)	
Q102	XT0210	2SC6026MFV-GR	
Q103	XE0051	2SJ347 TE85L	
Q104	XE0067	2SK3079A(TE12L)	
Q105	XE0049	2SK3078A(TE12L)	
Q106	XT0180	2SC5066FT-Y(TE85L)	
Q107	XT0180	2SC5066FT-Y(TE85L)	
Q110	XT0180	2SC5066FT-Y(TE85L)	
Q111	XT0180	2SC5066FT-Y(TE85L)	
Q112	XT0209	2SC4738-BL(TE85L,F)	
Q113	XU0205	DTC1441MT2L	
Q114	XE0058	MCH6305-TL	
Q115	XE0058	MCH6305-TL	
Q116	XE0059	2SK3541T2L	CQL/CQS
Q117	XE0058	MCH6305-TL	CQL/CQS
R101	RK3001	1608 1/10W 000 OHM J	T/E
R101	RK3027	1608 1/10W 120 OHM J	CQL/CQS
R102	RK3526	1005 1/16W 100 OHM J	
R103	RK3535	1005 1/16W 560 OHM J	
R104	RK3026	1608 1/10W 100 OHM J	CQ
R104	RK3001	1608 1/10W 000 OHM J	CQL/CQS
R105	RK3562	1005 1/16W 100K OHMJ	
R106	RK3550	1005 1/16W 10K OHM J	
R107	RK3550	1005 1/16W 10K OHM J	
R108	RK3550	1005 1/16W 10K OHM J	
R110	RK3530	1005 1/16W 220 OHM J	
R111	RK3546	1005 1/16W 4.7K OHMJ	
R112	RK3538	1005 1/16W 1.0K OHMJ	
R113	RK3550	1005 1/16W 10K OHM J	
R114	RK3526	1005 1/16W 100 OHM J	
R115	RK3562	1005 1/16W 100K OHMJ	
R116	RK3526	1005 1/16W 100 OHM J	
R117	RK3562	1005 1/16W 100K OHMJ	
R118	RK3530	1005 1/16W 220 OHM J	
R119	RK3550	1005 1/16W 10K OHM J	
R120	RK3562	1005 1/16W 100K OHMJ	
R121	RK3550	1005 1/16W 10K OHM J	
R122	RK3550	1005 1/16W 10K OHM J	
R123	RK3518	1005 1/16W 22 OHM J	
R124	RK3550	1005 1/16W 10K OHM J	
R125	RK3562	1005 1/16W 100K OHMJ	
R127	RK3526	1005 1/16W 100 OHM J	
R129	RK3534	1005 1/16W 470 OHM J	
R131	RK3544	1005 1/16W 3.3K OHMJ	

Ref No.	Parts No.	Parts Name	Ver.
R132	RK3550	1005 1/16W 10K OHM J	
R133	RK3542	1005 1/16W 2.2K OHMJ	
R134	RK3543	1005 1/16W 2.7K OHMJ	
R135	RK3518	1005 1/16W 22 OHM J	
R136	RK3550	1005 1/16W 10K OHM J	
R137	RK3566	1005 1/16W 220K OHMJ	
R138	RK3522	1005 1/16W 47 OHM J	
R139	RK3522	1005 1/16W 47 OHM J	
R140	RK3526	1005 1/16W 100 OHM J	
R141	RK3526	1005 1/16W 100 OHM J	
R142	RK3530	1005 1/16W 220 OHM J	
R143	RK3534	1005 1/16W 470 OHM J	
R144	RK3538	1005 1/16W 1.0K OHMJ	
R145	RK3559	1005 1/16W 56K OHM J	
R146	RK3559	1005 1/16W 56K OHM J	
R147	RK3537	1005 1/16W 820 OHM J	
R148	RK3554	1005 1/16W 22K OHM J	
R150	RK3574	1005 1/16W 1.0M OHMJ	
R151	RK3574	1005 1/16W 1.0M OHMJ	
R152	RK3574	1005 1/16W 1.0M OHMJ	
R153	RK3574	1005 1/16W 1.0M OHMJ	
R154	RK3574	1005 1/16W 1.0M OHMJ	
R155	RK3539	1005 1/16W 1.2K OHMJ	
R155	RK3543	1005 1/16W 2.7K OHMJ	T/E
R156	RK3542	1005 1/16W 2.2K OHMJ	CQL/CQS
R157	RK3550	1005 1/16W 10K OHM J	
R158	RK3562	1005 1/16W 100K OHMJ	
R159	RK3564	1005 1/16W 150K OHMJ	
R160	RK3550	1005 1/16W 10K OHM J	
R161	RK3537	1005 1/16W 820 OHM J	
R162	RK3544	1005 1/16W 3.3K OHMJ	
R163	RK3574	1005 1/16W 1.0M OHMJ	
R164	RK3532	1005 1/16W 330 OHM J	
R165	RK3562	1005 1/16W 100K OHMJ	
R166	RK3550	1005 1/16W 10K OHM J	
SW101	UU0040	SPVN110101	
TC101	CT0050	TZY2Z100A001R00	
TP106	UE0476	CONTACT PIN DJC7	
TP107	UE0476	CONTACT PIN DJC7	
VR101	RH0138	2720 2.2K OHM	
VR102	RH0142	2720 10K OHM	
VR103	RH0142	2720 10K OHM	
X101	XQ0175	SX-2112 21.25MHZ	
X102	XK0005	CDBC450CX24	

## Mechanical Unit

Ref No.	Parts No.	Parts Name	Ver.
	EA0135	ANTNNA EA135	CQS
	EA0134	ANTNNA EA134	CQL
	DP0175	LCD PANEL	
	AX0001	OPH P2+4 FE/B.ZN1	
	AN0012	RND N7X0.75 BR/B.ZN	
	AF0020Z	OPH M2+3 FE/N 1	
	NK0080A	KNOB S45	
	SD0105	BUTTERY TERMINAL A	
	SP0013	KNOB SPRING 7800	
	SS0101	CHASSIS A DJR100D	
	SS0102	CHASSIS B DJR100D	
	YX0039	LCD TAPE	
	FG0402	CUSHTION DJR100D	
	FG0403	HIMERON DJR100D	
	ES0027	SPEAKER 36-8BB-10B2	
	FG0375	ON AIR RUBBER	
	FG0393	WATERPROOF RUBBER	
	FM0262	ANTNNA EARTH	T/E
	FG0392	WATERPROOF CAP	
	FG0411	POWER KEY	
	FG0409	PTT RUBBER	
	FG0389	JACK CAP	
	YA0001	RTV GASKET(RED)500G	
	AX0004Z	OPH P2+8 FE/B.ZN 3	
	UE0505	SMA CONNECTOR	
	FG0399	O RING 6.50X1.5RED	
	FG0386	O RING23.00X1.5(B)	
	SD0106	BUTTERY TERMINAL B	
	FG0410	SILICON KEY	
	FG0394	DC CAP	
	FM0256	HINGE PIN	
	FP0243	LOCK LEVER DJR100	
	FP0245	BLIND SHEET DJR100D	
	KB0106	REAR CASE	
	KF0053	BATTERY COVER R100	
	KZ0182	FRONT CASE ASSY S45	
	EY0023	SKB-1544S-C1033H26	
W2	MACL07AA	#30A02-070-02	
W3	MPCL07AA	#30P02-070-02	

## Packing Unit

Ref No.	Parts No.	Parts Name	Ver.
	WA0139	ANT. EA139	T/E
	#G1124	BELT CLIP UNIT	
	PK0108	DIAGRAM DJ-S45	
	PS0504	INSTRUCTION MANUAL	
	HK0631	INDIVIDUAL BOX 45CQL	CQL
	HK0632	INDIVIDUAL BOX 45CQS	CQS/T/E
	HU0185	INNER DJ-R20D	CQL
	HU0214	INNER DJ-R100DS	CQS/T/E
	HM0223	CARTON	CQL
	HU0186	INNER	CQL
	HM0235	CARTON	CQS/T/E
	HU0197	INNER	CQS/T/E
	HP0031	PROTECTION BAG 100x200	CQS/T/E
	DS0478	SERIALSEAL	CQL/CQS/E
	PR0514	E-10x49 SEAL(W)	
	HP0034	PROTECTION BAG 90x350	CQL
	PH0015	WARRANTY EXPORT	T

# ADJUSTMENT

## 1) How to enter the adjustment mode.

Press the FUNC once, and press the MONI once.

Lock-indicator is displayed on the LCD, and presses the key below.

FUNC > ▲ > ▼ > ▲ > ▼ > FUNC

## 2) How to select the adjustment item.

Select an item by pressing the FUNC.

The MONI is reverse direction.

## 3) How to change the Squelch.

Hold the MONI, and Press the ▲ or ▼.

"SQL-07" is display on the LCD.

## 4) How to transmit the Tone Burst.

While transmitting, press the MONI to transmit the tone burst signal.

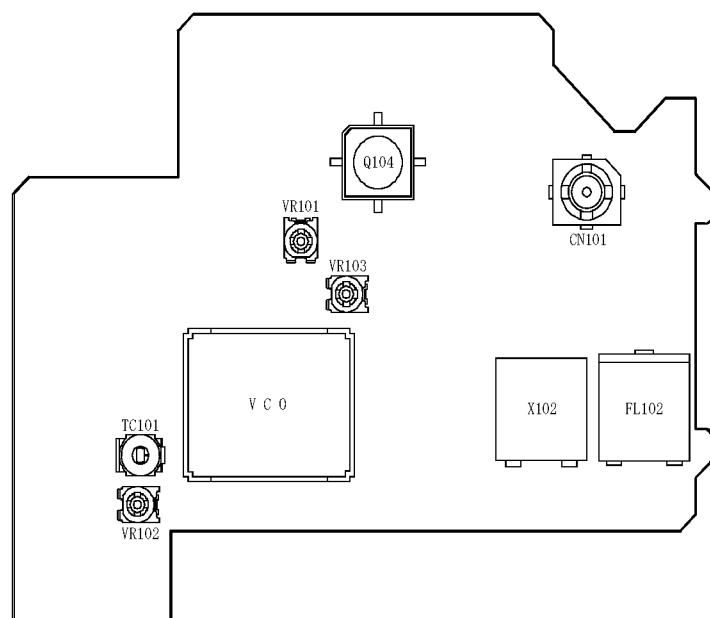
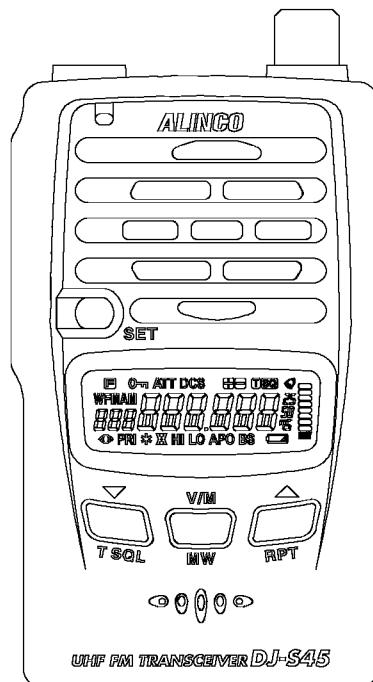
## 5) Standard Measuring Condition

Power Supply: 6.0V

DJS45CQ	Modulation Frequency: 1kHz
	Deviation: 1.5kHz
	Audio output power: 50mW (8 Ω)

DJS45T/E	Modulation Frequency: 1kHz
	Deviation: 3.5kHz
	Audio output power: 50mW (8 Ω)

## Adjustment Points



**MAIN UNIT**

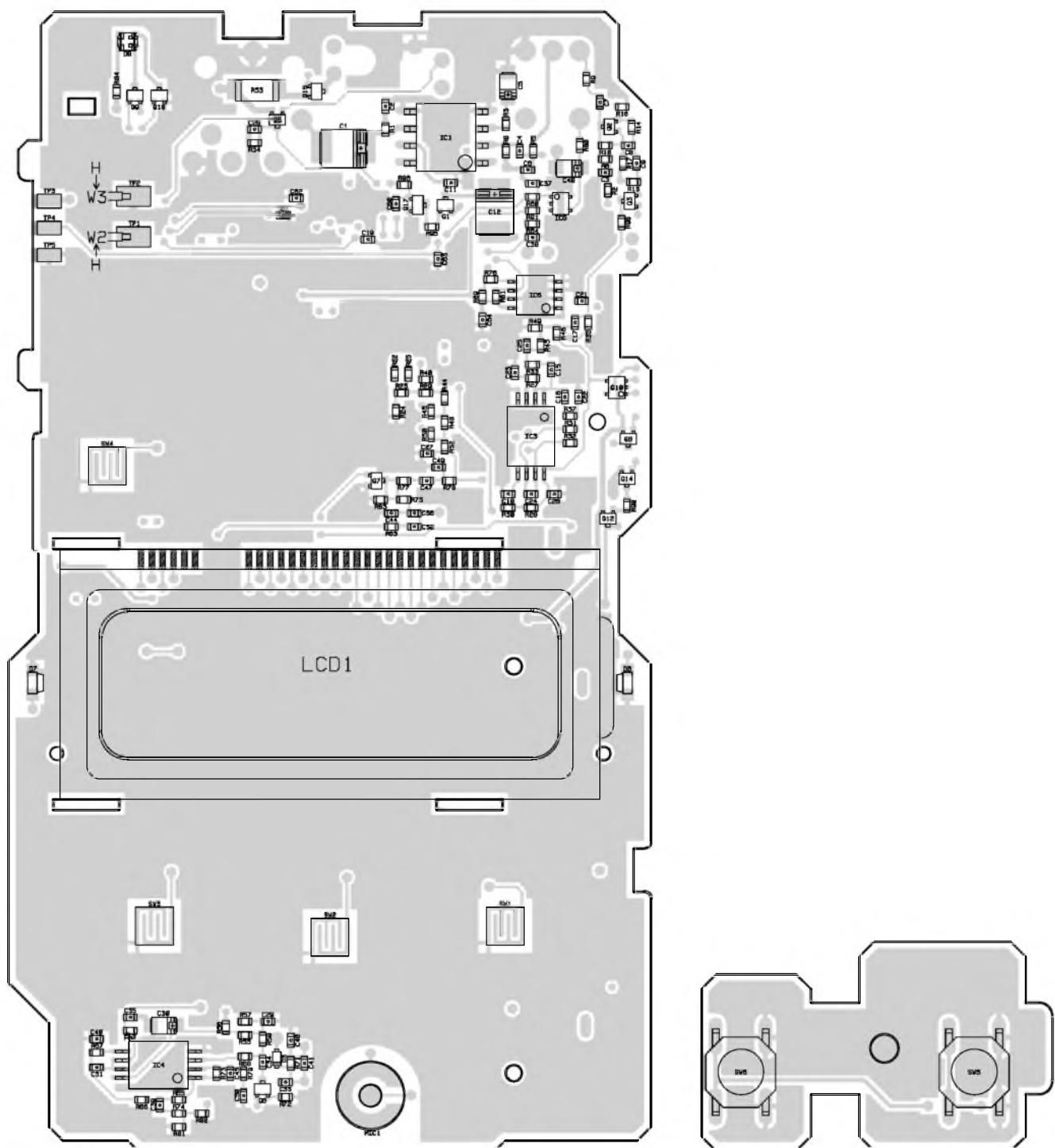
## Adjustment Specification

Item	Display	Frequency (MHz)	Adjust Point	Adjust Range	Condition
1. Reference Frequency	FrEq	CQ : 446.050 T : 445.050 E : 434.050	TC101	$\pm 100\text{Hz}$	—
2. Hi-Power	H-Pow	CQ : 446.050 T : 445.050 E : 435.050	VR101	$2.0 \pm 0.1 \text{W}$	—
3. Low-Power	L-Pow	CQ : 446.050 T : 445.050 E : 435.050	VR103	$0.5 \pm 0.05 \text{W}$	—
4. Modulation	mod	CQ : 446.050 T : 445.050 E : 435.050	VR102	CQ $2.1 \pm 0.1 \text{kHz}$ T/E $4.5 \pm 0.1 \text{kHz}$	AF signal 1kHz-50mV  AF Filter OFF-20KHz (at MT2605)
5. Sensitivity 12dB SINAD.	LtUn	CQ : 420.050 T : 420.050 E : 420.050	V/M	The sensitivity increases while $\blacktriangle$ key is being pushed, but at certain point it starts to decrease.	
6. Sensitivity 12dB SINAD.	mtUn	CQ : 440.050 T : 440.050 E : 440.050	V/M	Adjust to the best value just before it turns to decrease.	
7. Sensitivity 12dB SINAD.	HtUn	CQ : 473.950 T : 473.950 E : 473.950	V/M	$\blacktriangledown$ key is reverse direction. -7dBu or less	
8. SQL-L	SqL-L	CQ : 446.050 T : 445.050 E : 435.050	V/M	RF signal level: -10dBu  Check that the BEEP sound be heard after pressing V/M.	
9. SQL-H	SqL-H	CQ : 446.050 T : 445.050 E : 435.050	V/M	RF signal level: 0dBu  Check that the BEEP sound be heard after pressing V/M.	

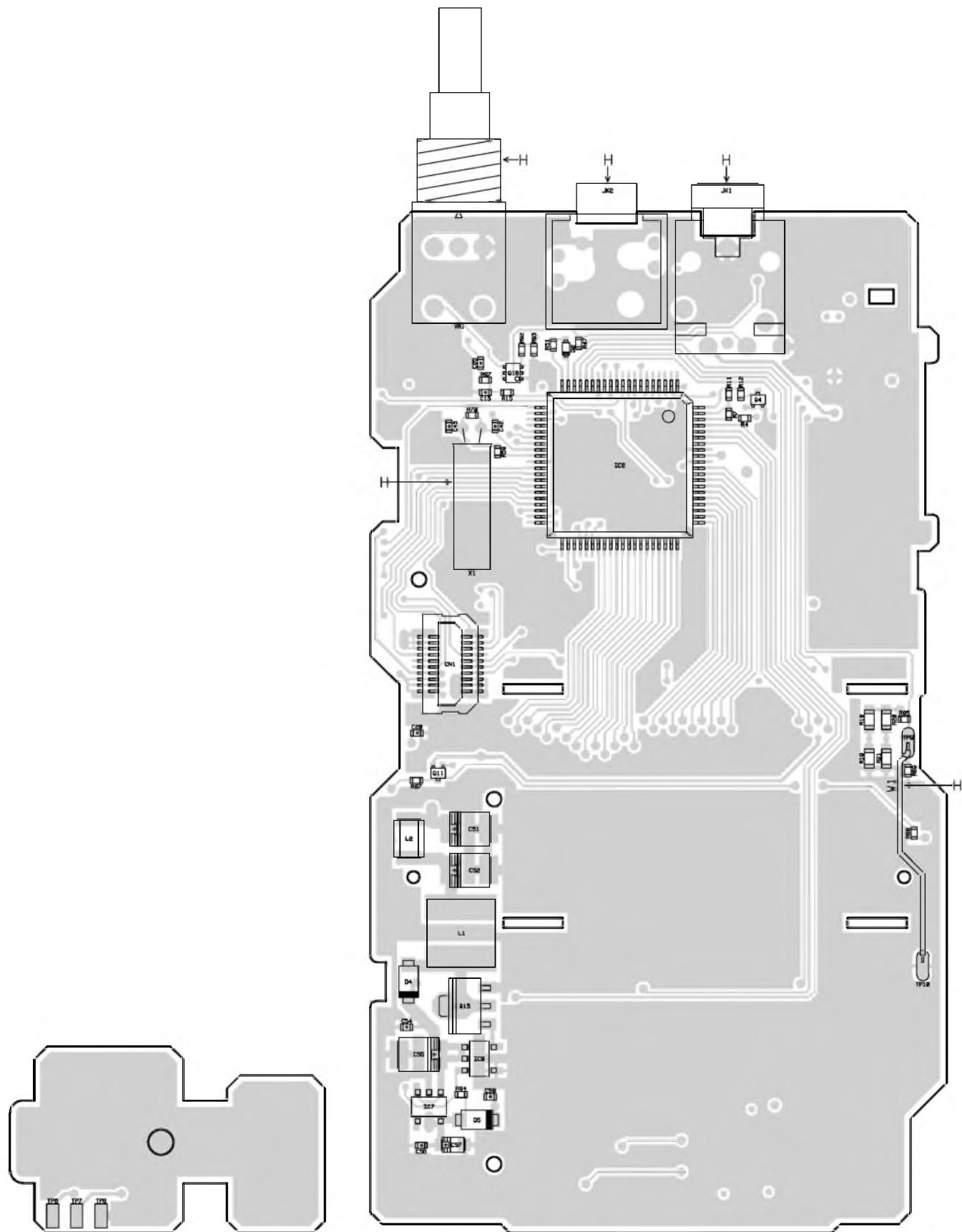
Item	Display	Frequency (MHz)	Adjust Point	Adjust Range	Condition
10. S meter-L	Sm-L	CQ : 446.050 T : 445.050 E : 435.050	V/M	RF signal level: -2dBu  Check that the BEEP sound be heard after pressing V/M.	
11. S meter-H	Sm-H	CQ : 446.050 T : 445.050 E : 435.050	V/M	RF signal level: 10dBu  Check that the BEEP sound be heard after pressing V/M.	
12. Standard Voltage	bAtt	—	V/M	Check that the BEEP sound be heard after pressing V/M.  (Power Supply: 6.0V)	
13. Low Battery (AA Battery)	bAt-1	—	V/M	Check if it is set the code 5E. If it is set to other code, adjust to code 5E by using ▲/▼.  Check that the BEEP sound be heard after pressing V/M.	
14. Low Battery (Li-ion Battery)	bAt-2	—	V/M	Check if it is set the code 3E. If it is set to other code, adjust to code 3E by using ▲/▼.  Check that the BEEP sound be heard after pressing V/M.	
15. Aging	AGInG			Press PTT to start Aging. Press PTT to finish Aging. (Power Supply: 6.0V)	
Turn off the power switch when the adjustment finishes.					

## PC BOARD VIEW

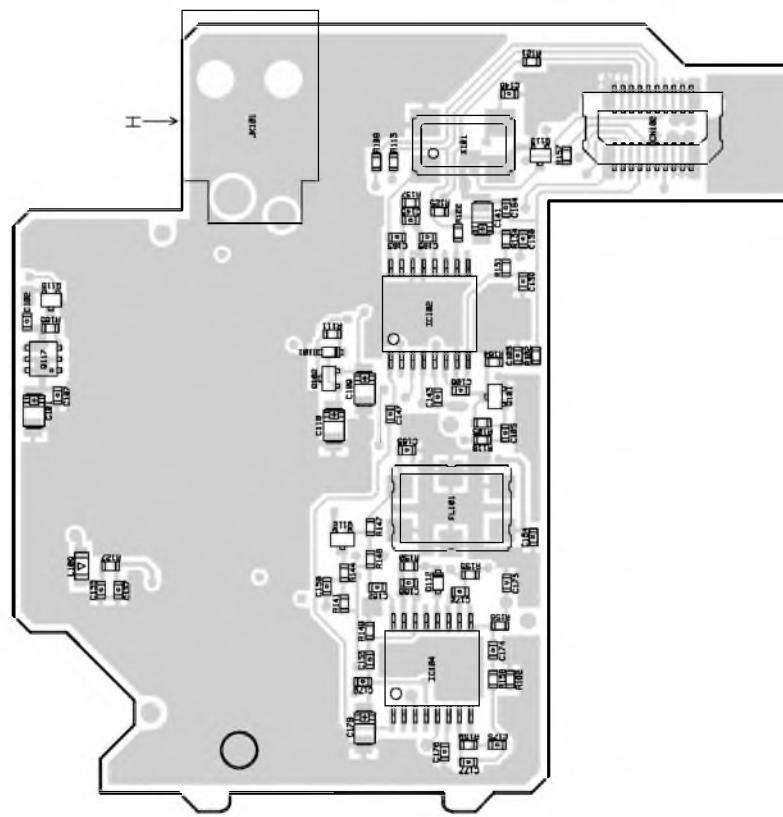
## 1) CPU Unit Side A



## 2) CPU Unit Side B

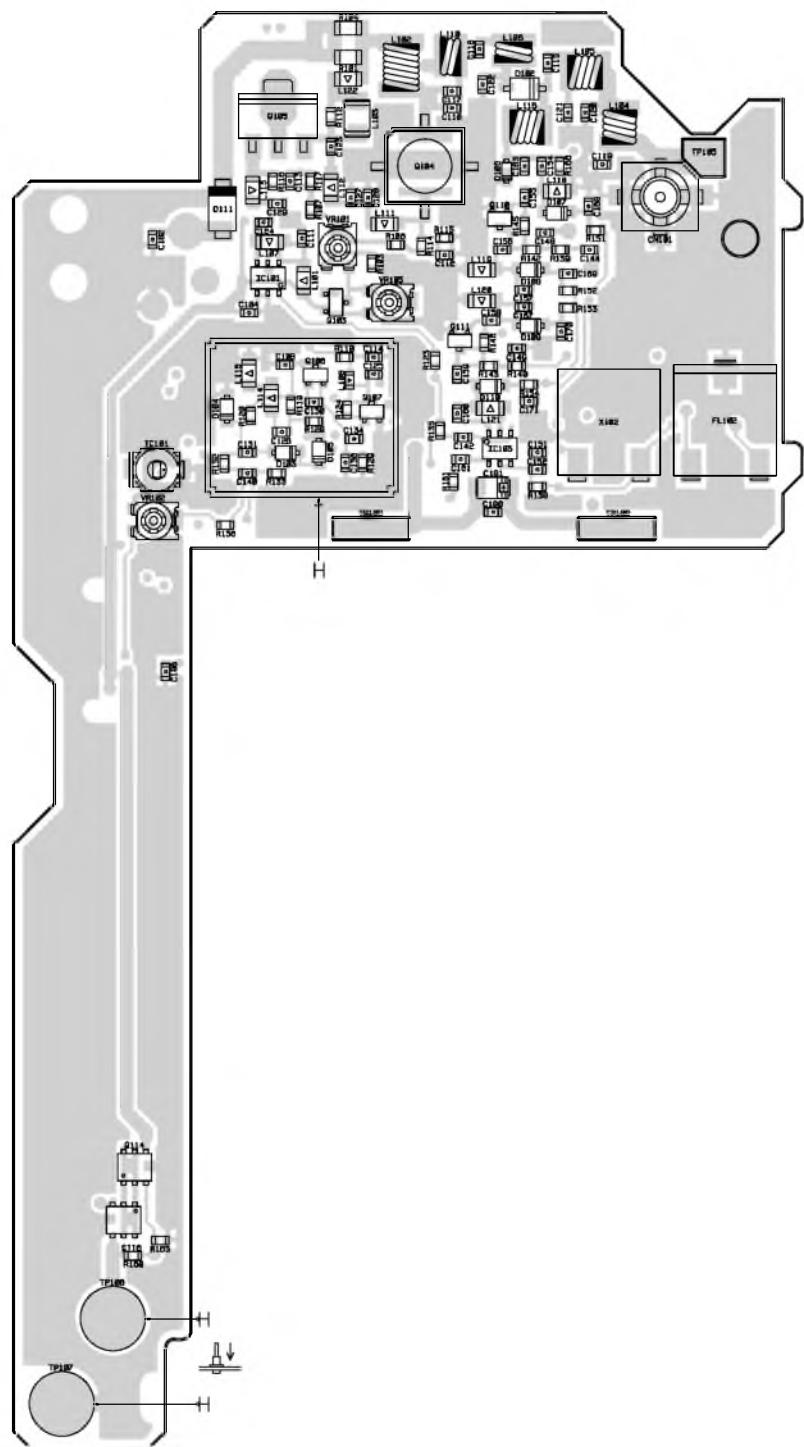


### 3) MAIN Unit Side A





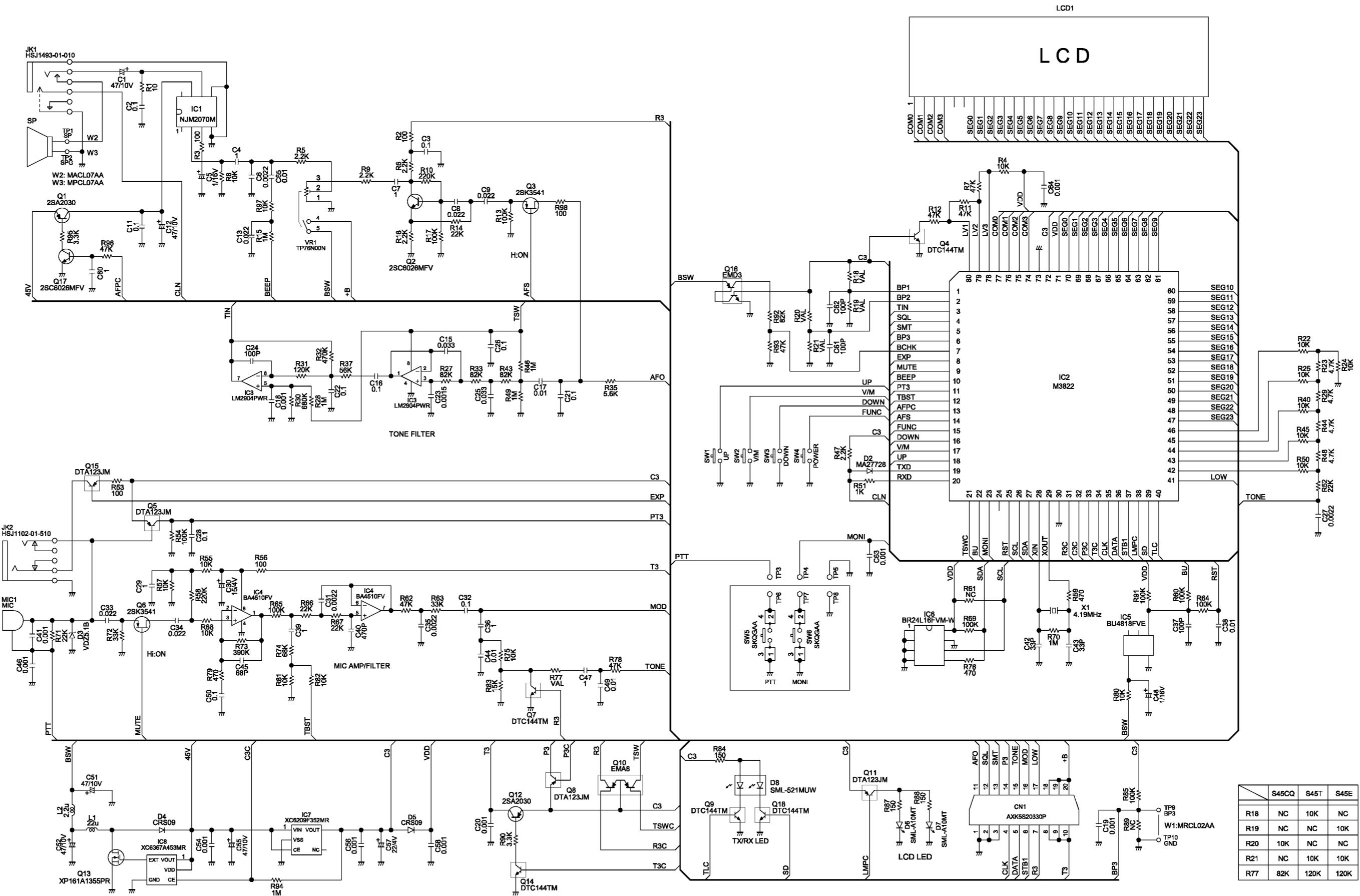
#### 4) MAIN Unit Side B



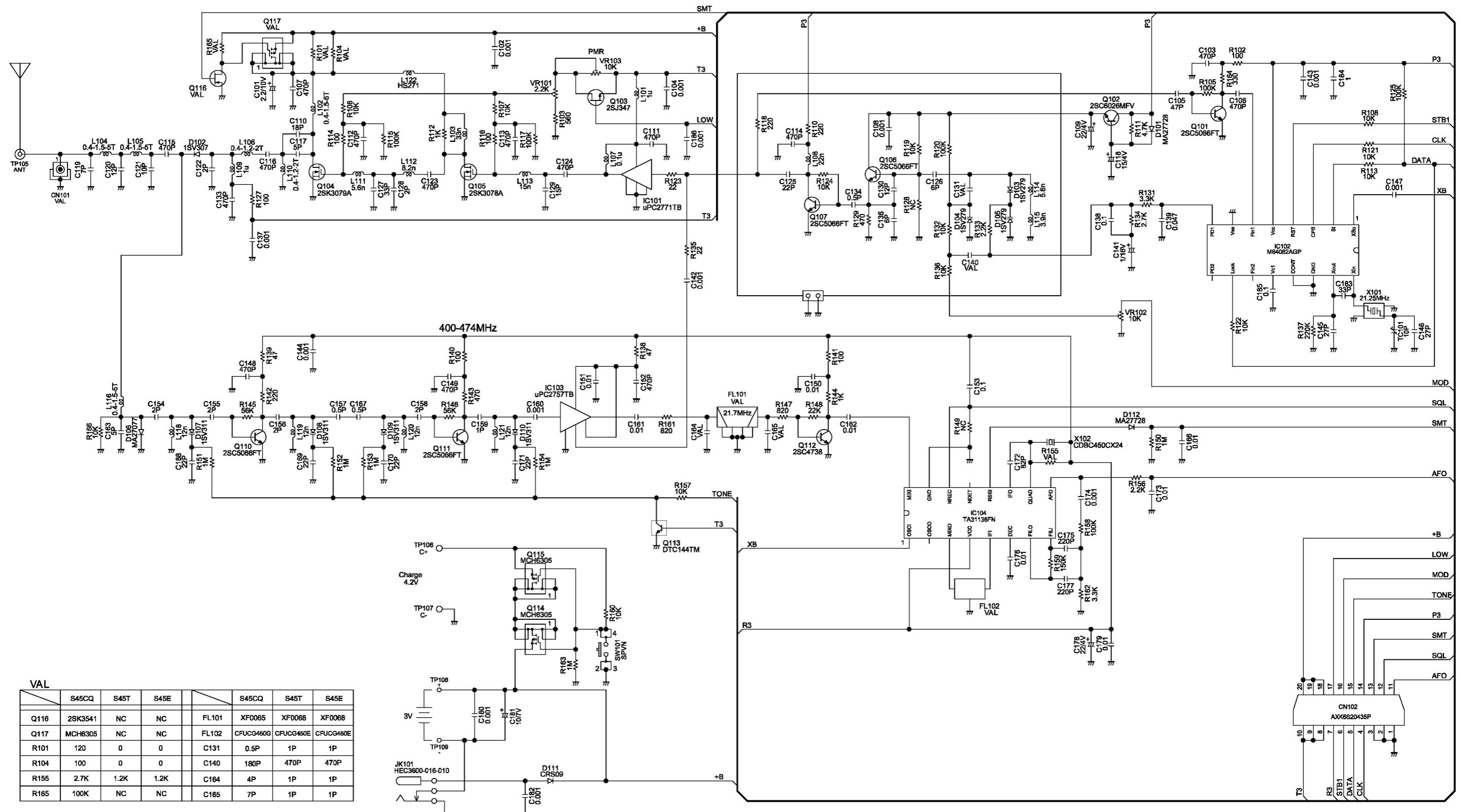


# SCHEMATIC DIAGRAM

## CPU Unit

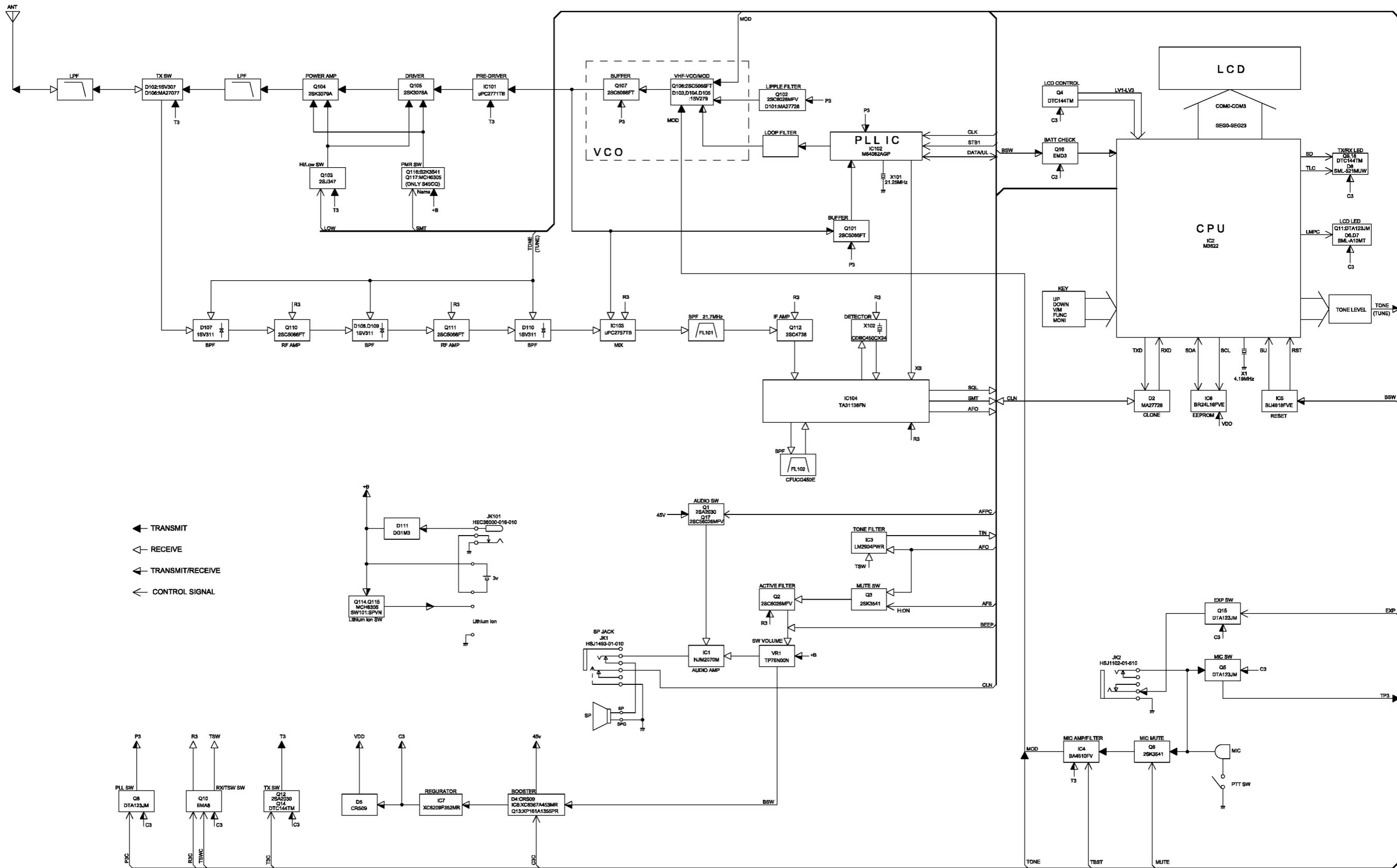


## MAIN Unit



VAL	S45CQ	S45T	S45E		S45CQ	S45T	S45E
Q116	2SK3541	NC	NC	FL101	XF0065	XF0068	XF0068
Q117	MCH6305	NC	NC	FL102	CFUQG460G	CFUQG460E	CFUQG460E
R101	120	0	0	C131	0.5P	1P	1P
R104	100	0	0	C140	180P	470P	470P
R155	2.7K	1.2K	1.2K	C164	4P	1P	1P
R165	100K	NC	NC	C165	7P	1P	1P

## BLOCK DIAGRAM







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